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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/889,645	01/24/2002	Anne Gillian Welch	9013.31	8639

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EXAMINER	
WINKLER, ULRIKE	

ART UNIT	PAPER NUMBER
1648	

DATE MAILED: 09/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/889,645	WELCH ET AL.	
	Examiner	Art Unit	
	Ulrike Winkler	1648	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 July 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on July 26, 2004 has been entered.

Claim Rejections - 35 USC § 103

The rejection of claims 1-19 and newly added claims 21-23 under 35 U.S.C. 103(a) as being unpatentable over Nebe (WO 96/05846, IDS Paper No. 1), Omar et al. (U.S. Pat. No. 5,696,236, IDS Paper No. 1) and Savage et al. (EP 0 798 003 A2, IDS Paper No. 1) **is maintained** for reasons of record.

Applicant's arguments are that the filter used by Nebe is not effective at "removing any abnormal infective prion protein". Applicant interprets this to mean that there is zero prion protein left in the solution. The word "any" is given the plain meaning (see Webster's dictionary) [1.] one or some indiscriminately of whatever-kind [2.] one, some or all indiscriminately of whatever quantity (a.) one or more – used to indicate an undetermined number or amount (b) all used to indicate maximum or whole. Hence "any" does not provide information regarding the amount (number of molecules) as the amount can be a continuum form a single molecule to all molecules. Therefore, applying the interpretation that "any" may be interpreted to be the removal of a single prion protein molecule the prior art rejection is maintained.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., no detectable prion protein in the filtrate after the filtration) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

In response to applicant's argument that the references of Savage (EP 0789 003) and Omar et al. (U.S. Pat. No. 5,696,236) do not recite the use "removal of infective prion proteins from aqueous liquids", a recitation of the intended use "removal of infective prion proteins from aqueous liquids" of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use of the "removal of infective prion proteins from aqueous liquids", then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963). In this instance both Savage (EP 0789 003) and Omar et al. (U.S. Pat. No. 5,696,236) are drawn to methods of filtering protein containing aqueous solutions using binders made of cellulose, kieselguhr, perlite or diatomaceous earth. Savage (EP 0789 003) explains that depth filters are typically used as prefilters to prolong the useful life of a membrane filter. Filter media that take the form of porous cake or bed of fine fibrous or particulate material deposited on a porous support substrate. Because of the deepness of the filter material the filters are called depth filters. Therefore, passing the aqueous liquid over filter material as disclosed by both

Savage (EP 0789 003) and Omar et al. (U.S. Pat. No. 5,696,236) would meet the intended use requirement of "removal of infective prion proteins from aqueous liquids".

Applicant argues that the Nebe (WO 96/05846, IDS Paper No. 1) filters are not effective in removing all prion proteins. Because the term "any" can be anything from a single molecule to all molecules Applicants arguments are not convincing since the prefilter alone removed half of the infectious agent (see Nebe page 13). Applicants argument regarding the Nebe reference are based on the unofficial translation are not persuasive. A review of the "unofficial translation" with the original reference finds that there are some inaccuracies in the "unofficial translation", one such inaccuracy is found in the translation of claim 5 which indicates that a reduction in the "Erreger" which is actually referring to the "Prionen" (prion) is referred to a "virus" in the unofficial translation. Claim 5 of the original document indicates that a reduction of the Erreger (aka prion) is reduced by a factor of 10^{-6} to 10^{-7} when passed through ultrafiltration membranes. The experimental data is further confusing as Nebe adds spiking material from the hamster brain homogenate between the various filtration steps. The addition of the spiking step (presumably so they can detect the prion) is done so that the removal of the prion may be observed with each filter step process, the reference then makes a calculation of the theoretical reduction that would be achieved from an aqueous solution given each specific filtration steps. Therefore, Applicants arguments that the Nebe reference does not achieve the reduction as instantly claimed is not persuasive.

Nebe (WO 96/05846, IDS Paper No. 1) teaches the removal of prion form solution utilizing a series of membrane or ultramembrane filters. The method teaches using a prefilter of nylon gauze and nylon membrane filers ranging in size from 2 microns to 0.2 microns (see page

10). The filters can be arranged in a series. The reference indicated that prion particles can be removed from the liquid and as an additional benefit at the same time other infectious martial can be removed such as bacteria, viruses and endotoxins (page 6). The reference also teaches that the prefilter alone removed half of the infectious agent (see page 13), indicating that the prion agent has a high binding affinity for the prefilter material.

Omar et al. teaches separating virus from protein solution using an absorbent (binder) that is either diatomaceous earth, perlite or kieselguhr (see claims). The method purifies a human blood plasma solution for the purpose of producing safe blood products (column 1, lines 10-30).

Savage et al. teach a method of removal of viruses from an aqueous liquid containing proteins, the method comprises the steps of passing the liquid though a depth filter formed of matrix comprising porous elements having a size 0.25 –2 microns.

It would have been obvious to one of ordinary skill in the art to utilize a depth filter, which is ordinarily used in the art as a prefilter for ultramembrane filtration (Savage et al. page 2, lines 47-48), for the removal of prion particles from a liquid based on the teaching of Nebe which indicated that half of the infectious prion was removed using the nylon premembrane filter (depth filter) indicating that the prion has a high nonspecific affinity for the prefiltration media. Furthermore, one having ordinary skill in the art would have a high expectation of success utilizing the matrices of Omar et al. and Savage et al. for the removal of infectious agent from blood plasma products.

The instant invention remains rejected over Nebe, Omar et al. and Savage et al.

New Rejetions:

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 1-19 rejected under 35 U.S.C. 102(e) as being anticipated by Morgenthaler et al. (U.S. Pat. No. 6,407,212).

The instant invention is drawn to removing prion protein from an aqueous liquid by passing the liquid through a "depth filter", the art recognizes this term to be a prefilter that would prolong the useful life of a typical surface/membrane filter. In this instance the filter comprises porous material having a pore size less than 6 microns. The filter binding agents are selected from kieselguhr, perlite or diatomaceous earth. The liquid comprises a blood plasma product.

Morgenthaler et al. disclse a method of removing prion from a blood sample using filter binding agents which are selected from kieselguhr, perlite or diatomaceous earth and contacting

the blood product with the filter binding agent before filtration of the liquid through a membrane filter. In this instance the filter binding agent forms the use of a prefilter by preventing the membrane filter from clogging. Therefore, the instant invention is anticipated by Morgenthaler et al.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-23 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for removing some prion molecules from a sample, does not reasonably provide enablement for every single (all) prion molecules from the same sample. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to practice the invention commensurate in scope with these claims. The claims are drawn to "removing any" "completely removing" or "any prion contained in the protein containing solution is removed".

There are limits in the detection process; therefore, it would not be possible to determine the removal of all prion molecules (completely removing) from a sample as the detection limits for every assay differs. The current detection limits for prion molecules are 10-100 pg which would account for 10^8-10^9 molecules (see Bennion et al. Clinical Chemistry 2002 or Barnard et al. Luminescence 2000). Therefore, a reduction to levels below the detection limit of a particular assay could still account for a significant number of prion molecules $>10^8$ to be present in the

sample, hence just because the detection method does not indicate the presence of the molecule does not mean that all molecules are removed. Furthermore, there are significant differences in the detection method for prion protein based on the particular assay that is used, the difference can be up to 2 orders of magnitude (see Bennion et al. page 2109, table 2). Therefore, the instant invention is not enabled for the limitation of "removing any" "completely removing" or "any prion contained in the protein containing solution is removed".

Claims 1-23 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The specification has not set out a method or process of determining the removal of all prion molecules. The assays present in the prior art would have a detection limit of 10-100 pg prion protein which would account for 10^8-10^9 prion molecules (see Bennion et al. Clinical Chemistry 2002 or Barnard et al. Luminescence 2000), therefore an assay result that is below the level of detection can still have a significant number of prion molecules $>10^8$ to be present. Therefore, the instant invention does not provide a written description for "removing any" "completely removing" or "any prion contained in the protein containing solution is removed" an providing a method of determining that the level of removal is achieved.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

The term "any" in claims 1-23 is a relative term which renders the claim indefinite. The term "any" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. The instant claims are drawn to the removal of prion molecules from a sample, the metes and bounds of what is included or excluded buy the term "any" is not clear as any can be a continuum form one to all.

Claim Objections

Claims 21 and 22 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. In this instance the claim from which they depend indicate that "removing any" is interpreted as all and therefore the limitations of claims 21 and 22 do not further limit the parent claims which already has all the prion protein removed from the sample.

Conclusion

Claims 1-23 are rejected.

Papers related this application may be submitted to Group 1600 by facsimile transmission. Papers should be faxed to Group 1600 via the PTO Fax Center. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG (November 15, 1989). The Group 1600 Official Fax number is: (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Tech Center representative whose telephone number is (571)-272-1600.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ulrike Winkler, Ph.D. whose telephone number is 571-272-0912. The examiner can normally be reached M-F, 8:30 am - 5 pm. The examiner can also be reached via email [ulrike.winkler@uspto.gov].

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Housel, can be reached at 571-272-0902.

ULRIKE WINKLER, PH.D.
PRIMARY EXAMINER 9/17/04